

Bridges Lesson Plan

Lesson Plan: Multiple Intelligences – Bridges

Theme: Types of Bridges Found in Michigan

Subject: Social studies, Michigan history, transportation

Objective: To learn about the role of bridges in Michigan's transportation system and how this affects the students' daily lives.

Michigan Strand: Inquiry

Michigan Standard: Information Processing & Conducting Investigations

Time Period: 5 days in 30 - 45 minute periods

MONDAY: Introduce vocabulary as a spelling list.

bridge	anchor	arch	beam	truss	deck
distance	framework	fixed	piers	support	depth
structure	strength	span	stable tower	cable	
wire	approach				

BONUS WORDS:

foundation	suspension	cantilever
distribute	compression	

Have students work in pairs to locate the meaning of 8 words and create a Peek-A-Boo word book to share with the class. They may illustrate or define the words under each flap which has a spelling word on it. Share with the class. Which words were difficult to draw? How can we remember what they mean? Discuss ideas with the class. (V-L, V-S)

Have students stand up to create a bridge with their bodies (like playing London Bridge). How high can they make their bridge? Can classmates go under the bridge (like boats)? How far away can they move their feet and lower their arms to accommodate wider boats? What did they learn about bridges? Where did they feel the most stress? Why do they think they felt stress in those spots? (V-L, B-K)

TUESDAY: Use the AIMS bridge pages to construct a beam, arch, truss, and suspension bridge. Build the bridges from regular printer paper. Test each design with a load predetermined by the teacher or the class. Keep results of the investigation on the Test My Stress record page. Building and testing can be done in cooperative groups of 3 to 4 students. Share results as a class. Create a comparison graph if desired. This may take 45 minutes on one day or be broken up into shorter periods over 2 days. (B-K, leP, N, VS)

Which bridges were stronger? Why do the students think they were stronger? Where did the bridges get their strength?

WEDNESDAY: Use the internet site <http://www.howstuffworks.com/bridgel.htm> to locate information on "How Bridges Work". Students may work in pairs to read and record notes about: beam, arch, and suspension bridges. Some students may wish to print the article to read and highlight. Jigsaw the pairs to concentrate on: Introduction to How Bridges Work, The Basics, The Beam Bridge, Arch Bridge, or Suspension Bridge. After reading their section, they may compare notes with another pair with the same information. Have the larger group of four decide how they would like to share the information with the rest of the class. (Pictures, demonstration, summary, slide show, other) (N, V-L)

THURSDAY: Share information with the whole class. Class takes notes. View parts of the short video: *Popular Mechanics: Bridges* and selections of *Building the Mighty Mac*. Where are the 4 major bridges of Michigan located? What importance do bridges have in Michigan? (transportation, economics, tourism) Students journal and discuss. (V-L)

Other helpful resources: *Historic Highway Bridges of Michigan* by Charles K. Hyde and *Bridges* by Etta Kaner.

FRIDAY: Find songs about bridges. Play them for the class. (London Bridge is Falling Down, Bridge Over Troubled Water, Love Will Build a Bridge) Students could create movements for the songs or draw what the music makes them think of. Ask the students to write about why bridges are used in poetry and songs. What could bridges represent in their lives? (IaP, M-R)

If students want to do independent research on the Mackinac Bridge, they could use the entire video, The Picture Story of the Mackinac Bridge, the web site:

<http://www.mackinacbridge.org>. This site includes a live camera shot of the bridge, has history, bridge facts, and a connection to the Blue Water Bridge in Port Huron. There is additional information from the DNR Millennium Project.

Writers may wish to create an advertisement about one of the bridges including history, facts, and how it serves Michigan.

Artists may wish to design a postcard of their favorite bridge.

Possible field trips:

- Diamond Jack's River Tours for the Ambassador Bridge
- Sheplar's Ferry will take student tours under the Mackinac Bridge with prior arrangements. It permits a special view of bridge structure.

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